Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
	)	
Use of Spectrum Bands Above 24 GHz For Mobile Radio Services	)	GN Docket No. 14-177
	)	
Establishing a More Flexible Framework to Facilitate Satellite Operations in the 27.5–28.35 GHz and 37.5–40 GHz Bands	)	IB Docket No. 15-256
	)	
Petition for Rulemaking of the Fixed Wireless Communications Coalition to Create Service Rules for the 42–43.5 GHz Band	)	RM-11664
	)	
Amendment of Parts 1, 22, 24, 27, 74, 80, 90, 95, and 101 To Establish Uniform License Renewal, Discontinuance of Operation, and Geographic Partitioning and Spectrum Disaggregation Rules and Policies for Certain Wireless Radio Services	)	WT Docket No. 10-112
	)	
Allocation and Designation of Spectrum for Fixed Satellite Services in the 37.5–38.5 GHz, 40.5–41.5 GHz and 48.2–50.2 GHz Frequency Bands; Allocation of Spectrum to Upgrade Fixed and Mobile Allocations in the 40.5–42.5 GHz Frequency Band; Allocation of Spectrum in the 46.9-47.0 GHz Frequency Band for Wireless Services; and Allocation of Spectrum in the 37.0–38.0 GHz and 40.0–40.5 GHz for Government Operations	)	IB Docket No. 97-95

REPLY OF THE EMEA SATELLITE OPERATORS ASSOCIATION (ESOA)

The EMEA Satellite Operators Association ("ESOA") submits these reply comments in response to the Federal Communications Commission's (the "Commission") Further Notice of Proposed Rulemaking ("FNPRM")[1] in the above referenced proceeding.

[1] Use of Spectrum Bands Above 24 GHz for Mobile Radio Services, GN Docket No. 14-177, et al., Report and Order and Further Notice of Proposed Rulemaking, FCC 16-89 (Jul. 14, 2016) ("*FNPRM*")

I. SHARING IN BANDS ABOVE 40 GHZ SHOULD BE ALLOWED TO DEVELOP ORGANICALLY BASED ON CURRENT REGULATIONS WHILE THE TECHNOLOGY MATURES

While ESOA does believe that under certain technical rules, sharing between satellite and terrestrial services is possible in the bands above 40 GHz,[2] the record in response to the Spectrum Frontiers *FNRPM* demonstrates that new allocations in these bands would be premature and that the best course of action at this time would be to allow sharing among these systems to develop organically. The *FNPRM* states that its objective is to make multiple bands available for the wide variety of services being offered. However, designating bands for services that are still in the nascent stages of technology development encourages inefficient spectrum use rather than maximization and undermines the overall objective of the Commission's commendable undertaking.

Many of the bands identified for consideration in the *FNPRM*, including 24 GHz, 47 GHz, 50 GHz and 70/80 GHz, have existing co-primary allocations for Fixed-Satellite Service ("FSS"). Though FSS systems have not yet been deployed into all of these bands, the *FNPRM* record demonstrates[3] that these bands are central to the deployment of numerous next-generation, high-throughput broadband satellite systems, and FSS operators must continue to have reliable access to them.

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[2] In the second round of Spectrum Frontiers proceeding these bands are the 42 GHz (42.0–42.5 GHz), the 47 GHz (47.2–50.2 GHz), the 50 GHz (50.4–52.4 GHz), and the 70/80 GHz (71.0–76.0 GHz and 81.0–86.0 GHz) bands.

[3] *See* Comments of O3b Limited, GN Docket No. 14-177 at pg.5–9 (filed September 30, 2016) (discussing the planned build out of gateways for O3b's Non-Geostationary Orbit ("NGSO") constellation.); *see also* The Boeing Company, GN Docket No. 14-177 at pg. 8–18 (filed September 30, 2016) (discussing Boeing's planned FSS NGSO constellation in Low Earth Orbit, which will communicate with gateways in the 50 GHz band).

In stark contrast, the comments by the wireless industry concede that there are currently no planned uses for the bands above 40 GHz, let alone technologies far enough along in the development stages for deployment in the near future to be considered feasible or realistic. The *FNPRM* submissions do not offer a single example of terrestrial services that are readily deployable in these upper bands, nor of any agreed upon set of technical standards by which to define this integrated service. Most importantly, the record lacks any demonstration by the wireless industry that more spectrum allocations are necessary, or even moderately helpful, to enabling the advancement of terrestrial wireless systems.

The H Block spectrum auction,[4] the Advanced Wireless Service-3 band auction,[5] and the Spectrum Frontiers Report and Order,[6] have all proceeded over the past three years to open up spectrum for terrestrial wireless use. With the addition of the prospective Incentive Auction,[7] and the restructuring of the 3.5 GHz band,[8] there is a wide variety of spectrum available for terrestrial expansion and experimentation. In fact, several of the major terrestrial carriers have openly stated that they have an abundance of unused and lightly used spectrum in their holdings that can be utilized for wireless development.[9]

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[4] *See Auction of H Block Licenses in the 1915–1920 MHz and 1995–2000 MHz Band Closes; Winning Bidder Announced for Auction 96*, Public Notice, 29 FCC Rcd 2044 (2014).

[5] *See Auction of Advanced Wireless Services (AWS-3) Licenses Closes, Winning Bidders Announced for Auction 97*, Public Notice, 30 FCC Rcd 630 (2015).

[6] *Spectrum Frontiers R&O and FNPRM* at ¶ 4.

[7] *See Broadcast Auction Scheduled to Begin March 29, 2016; Procedures for Competitive Bidding in Auction 1000, Including Initial Clearing Target Determination, Qualifying to Bid, and Bidding in Auctions 1001 (Reverse) and 1002 (Forward)*, Public Notice, 30 FCC Rcd 8975 (2015).

[8] *See Amendment of the Commission's Rules with Regard to Commercial Operations in the 3550–3650 MHz Band,* Order on Reconsideration and Second Report and Order, 31 FCC Rcd 5011 (2016).

[9] *See* Mike Dano, "AT&T CFO: Our 40 MHz of unused spectrum will 'dramatically improve our capacity'" *FierceWireless* (August 9, 2016). Available at http://www.fiercewireless.com/wireless/at-t-cfo-our-40-mhz-unused-spectrum-will-dramatically-improve-our-capacity (At a communications conference in August 2016, AT&T's

Given the disparity between actual FSS systems being designed and built for operation in the above 40 GHz bands and the academic exercise of exploring bands for future wireless use, the reallocation of spectrum in these bands at this juncture would cause more harm than good. More importantly, the current regulatory environment does not foreclose terrestrial use of the bands should wireless operators opt to design their systems based on the characteristics of the high millimeter wave bands; it merely would require them to coordinate and protect those operations with primary and secondary allocations in the bands from any harmful interference that their new services may generate. Thus, the Commission should refrain from reallocating any more spectrum to terrestrial wireless services until there is a demonstrable need to meet the demands for any particular service.

II. ESOA SUPPORTS THE GLOBAL VSAT FORUM'S COMMENTS REGARDING TERRESTRIAL USE OF MILLIMETER WAVE SPECTRUM AND THE NEED FOR ACCOMMODATIONS TO ENABLE SHARING WITH EXISTING AND FUTURE SATELLITE SERVICES

Should the Commission decide that reallocation of more spectrum to terrestrial wireless networks is necessary, ESOA generally supports the Global VSAT Forum's ("GVF") initial comments to this *FNPRM*. ESOA agrees with GVF that through adoption of basic technical

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John Stephens told the audience: "We have the largest – about 140 MHz – maybe more than that – of low- and medium-band spectrum, which gives us a unique advantage…" and that "If you look deeper into that spectrum, you realize there's about 40 MHz of that spectrum – AWS-3 and WCS – that we have acquired over that last few years that is very lightly, if at all, used in our network. So all the traffic we're carrying today is carried by the first 100 MHz…and then if you look at that 100 MHz, some of it's dedicated to 2G, which will be able to be repurposed next year…And a large part of it is dedicated to 3G, which over time will also be able to be upgraded to 4G LTE or 5G."). *See* Marguerite Reardon, "Verizon says it has enough wireless spectrum, but is it just a stalling tactic?" *Cnet* (February 17, 2015) Available at https://www.cnet.com/news/verizon-says-it-has-enough-wireless-spectrum-but-is-it-just-a-stalling-tactic/. (Tony Melone, CTO told investors, "With the addition of the licenses won at [the January 2015 government auction] we have spectrum holdings that allow us to cost effectively meet the anticipated growth needs of the business in the near term.")

measures, satellite systems will be able to share portions of the 24 GHz (24.25–24.45 GHz and 24.75–25.25 GHz), the 37/39 GHz (37.5–40 GHz), the 47 GHz and the 50 GHz bands with future terrestrial services without increasing the risk of harmful interference.[10]

In particular, ESOA emphasizes the importance of expanding use of the upper 24 GHz band to FSS beyond Broadcast-satellite service ("BSS") feeder links, when such use will be technically similar and subject to the same technical rules as BSS feeder links. Expanding FSS use of the band will increase harmonization in the band around the world and will ensure robust use of spectrum already allocated to satellite operations.

As previously mentioned in ESOA's reply comments during the Notice of Proposed Rule Making ("NPRM") of this proceeding,[11] ESOA continues to support the Commission's proposal to make the 32 GHz band (31.8–33.4 GHz) available for Upper Microwave Flexible Use Service ("UMFUS"). This band received international support during WRC-15, is being studied for a new allocation for future mobile terrestrial services at WRC-19, and has a high likelihood of international harmonization. ESOA believes that this would be an efficient band for UMFUS deployment.

III. CONCLUSION

ESOA strongly recommends that the Commission maintain its current allocations for spectrum bands above 40 GHz which will provide FSS systems with the certainty they need to deploy their currently planned systems, without interfering with or delaying the evolution of wireless broadband services. However, should the Commission decide that further allocations of

[10] Comments of GVF, GN Docket 14-177 et al., at 3 (Sep. 30, 2016).
[11] ESOA reply comments

spectrum are necessary above 40 GHz for the furtherance of its objectives, ESOA urges the Commission to adopt the recommendations made by the GVF in its comments to the *FNPRM*.

Respectfully Submitted,

/s/ Aarti Holla

Aarti Holla
Secretary General
EMEA Satellite Operators Association
Bastion Tower, 20th Floor
5 Place de Champ de Mars, 1050 Brussels
+32 2 550 3575

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